THE JOURNAL OF FINANCE • VOL. LXI, NO. 1 • FEBRUARY 2006

Initial Public Offerings: An Analysis of Theory and Practice

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ABSTRACT

We survey 336 chief financial officers (CFOs) to compare practice to theory in the areas of initial public offering (IPO) motivation, timing, underwriter selection, underpricing, signaling, and the decision to remain private. We find the primary motivation for going public is to facilitate acquisitions. CFOs base IPO timing on overall market conditions, are well informed regarding expected underpricing, and feel underpricing compensates investors for taking risk. The most important positive signal is past historical earnings, followed by underwriter certification. CFOs have divergent opinions about the IPO process depending on firm-specific characteristics. Finally, we find the main reason for remaining private is to preserve decision-making control and ownership.

GREAT EFFORT, THEORETICAL AND EMPIRICAL, has been made to understand managerial decision-making in the initial public offering (IPO) process. Most empirical IPO research relies on publicly available stock return data or data contained in Securities and Exchange Commission (SEC) filings. In this study we extend the IPO literature by analyzing unique data from surveys of chief financial officers (CFOs) to compare CFO perspectives to prevailing academic theory. Specifically, we examine the following seven issues: motivations for going public, timing of the IPO, underwriter selection, underpricing, signaling, IPO process issues, and the decision to stay private. We survey three subsamples of firms, namely, those that successfully completed an IPO, those that began the process but chose to withdraw the issue, and those that are large enough to go public, but have not attempted an IPO.

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Historically, empiricists have had difficulty studying why firms go public due to data constraints. Our survey data allow us to overcome this constraint and directly ask CFOs why they conduct an IPO. We find that CFOs identify the creation of public shares for acquisitions as the most important motivation for going public. Traditional textbook explanations such as lowering the cost of capital and the pecking order of financing are not among the most important reasons for conducting an IPO. Additionally, high-tech firms view an IPO more as a strategic reputation-enhancing move than as a financing decision.

Previous literature has documented that IPOs tend to come in waves, characterized by periods of hot and cold markets. To understand this phenomenon better, we analyze the timing of IPOs. We find that CFOs take into account market and industry stock returns, and place less emphasis on the strength of the IPO market when considering the timing of their issue. Venture capital (VC)-backed firms and firms with small insider ownership decreases in the IPO tend to view market timing issues as more important than their counterparts.

Examining CFO sentiment toward underwriter selection criteria, we find that CFOs select underwriters based on overall reputation, quality of the research department, and industry expertise. By comparing our results to Krigman, Shaw, and Womack (2001), we find that CFOs' criteria for choosing underwriters have remained stable in the pre- and post-bubble period. Large-firm CFOs feel that IPO spinning (allocating shares to potential client-firm insiders) is more of a concern in underwriter selection than small-firm CFOs. CFOs in firms with high-prestige underwriters select underwriters based on reputation, quality, expertise, and institutional investor client base. By contrast, CFOs in firms that use low-prestige underwriters are more concerned with valuation promises, retail investor client base, and fee structures. These findings based on high and low underwriter prestige are not driven by a size effect.

On average, IPOs are priced lower than their first-day market closing price.[1] Known as underpricing, this topic is perhaps the most widely studied area in the IPO literature. We find that CFOs are relatively well informed regarding the expected level of underpricing. They feel that underpricing exists primarily to compensate investors for taking the risk of investing in the IPO. CFOs indicate that the second-most important reason for underpricing is the desire of underwriters to obtain the favor of institutional investors.

Regarding signaling theory, CFOs, especially of large firms, view strong historical earnings as the most positive signal in the IPO process. Using a top investment banker is the second-strongest positive signal and committing to a long lockup is the third-strongest positive signal. Selling a large portion of the firm, issuing units, and selling insider shares are all viewed as negative signals.

Our analysis of IPO process design (i.e., underwriting contract type, lockups, overallotment option, window dressing, and unit offerings) reveals that CFOs view the use of a firm-commitment underwriting contract as the most

[1] Between the period 1960 and 2003, IPOs have averaged 18% underpricing. (Data taken from http://bear.cba.ufl.edu/ritter/publ_papers/IPOALL.xls.)

important issue. Firm commitments are of particular importance to VC-backed firms and withdrawn firms. The lockup period is also important and serves primarily as a positive signal by insiders and secondarily as an alignment device. The overallotment option is viewed as only moderately important. Concerning window dressing (accrual management in the IPO prospectus financial statements), CFOs recognize the importance of presenting strong earnings in the prospectus, but are not preoccupied with potential negative backlash from window dressing. Relative to the other process issues, unit offerings (issues that include options with the stock offering) are not considered as important.

The final issue we examine involves factors that influence the decision to withdraw or not conduct an IPO. We find that CFOs, particularly those in older firms, give maintenance of decision-making control as the primary reason for remaining private. CFOs are also concerned about unfavorable market and industry conditions. CFOs who employ high-prestige underwriters are more confident in the IPO process. High-tech firms are less concerned about control and dilution but are more concerned about bad market and pricing issues.

In all of the preceding issues, we find that CFO sentiment is conditioned on the IPO status of the firm. For example, CFOs who attempted an IPO (either successfully or unsuccessfully) disagree with CFOs who have not tried an IPO (not-tried CFOs) pertaining to motivations for going public, underwriter selection criteria, reasons for underpricing, and negative IPO signals. Regarding the decision to stay private or the decision to withdraw, we find that CFOs of withdrawn IPOs hold different opinions from CFOs in the other two groups. Further, regarding IPO timing, successful CFOs feel industry conditions are less important relative to the other two groups.

The remainder of the paper proceeds as follows. Section I briefly overviews the methodology and data. Sections II–VIII, in turn, review the IPO literature used to generate the survey questions and present detailed findings from our data analysis. Section IX summarizes our key conclusions.

I. Research Methodology

A. Survey Methodology and Data Sources

Our survey process follows Dillman's (1978) Total Design Method, which is a standard for conducting academic surveys. The Total Design Method maximizes the response rate through a series of mailings to potential respondents. The initial survey instrument was developed based on an extensive review of the extant IPO literature. We circulated the survey and conducted beta surveys. At each step, feedback was used to improve the survey. Finally, slight modifications were made to customize the surveys to the three targeted subsamples. An example of one of these final surveys is included as Appendix A.

Mailing lists were constructed as follows. From the Security Data Company's (SDC) New Issue Database, we identified nonfinancial U.S. companies that had successfully completed an IPO (340 valid addresses) or attempted and subsequently withdrew an IPO (179 valid addresses) between January 2000

and December 2002. We searched the offering prospectus of each filing firm using EDGAR at www.sec.gov to obtain the CFO name and to confirm the company mailing address obtained from SDC. For our private-firm sample, we searched Dun and Bradstreet's North American Million Dollar Database and Reference USA Database and selected the largest (1,500) nonfinancial private firms based on their 2002 revenues. We reason these firms are large enough to go public; however, they choose to remain private. We identified valid CFO contact information for 1,266 of these firms.

We mailed three separate mailings on May 5, 2003, June 11, 2003, and September 12, 2003. Along with each survey, we included a personalized and signed cover letter, a personalized envelope (no labels), a postage-paid reply envelope, and a glossary of IPO terms. To increase our response rate, we promised to enter respondents' business cards into a $1,000 cash drawing and to provide respondents with an early copy of the results. Overall, 336 CFOs provided usable surveys for a response rate of 18.8%. The responses by subsamples are: 212 not-tried (16.7% response), 87 successfully completed (25.6% response), and 37 withdrawn (20.7% response) firms. Our overall response rate of almost 19% compares favorably to the Graham and Harvey (2001) response rate of approximately 9%, which they argue is comparable with other financial survey studies.

For publicly available data on the successful IPO sample, we download prospectus data from SDC. We then check the original prospectuses from EDGAR and ensure that the SDC data are correct, making corrections when necessary. Using EDGAR, we also fill in some data that are not reported in SDC. In the successful sample, we make 264 additions or corrections to the SDC download.[2] In the withdrawn sample, we make 150 additions or corrections to the database from EDGAR.[3] Returns data for the publicly traded firms are collected from the University of Chicago's Center for Research in Securities Prices (CRSP) database. For the privately held firms, we draw revenues, primary Standard Industrial Codes (SICs), and founding year from Dun and Bradstreet and Reference USA.

B. Summary Statistics of Respondent Firms

Table I reports summary statistics for the conditioning variables used in subsequent tables. The first conditioning variable, *Size*, is based on total

[2] For the successful responding sample, we supplemented SDC with 38 founding dates, 8 revenues prior to the offer, 17 numbers of employees, 23 insider ownerships prior to offer, 22 insider ownerships after the offer, 20 offering expenses, 3 book values per share before the offer, 3 shares outstanding after the offer, and 1 share outstanding after the offer. We corrected 79 total assets prior to the offer, 33 revenues prior to the offer, 1 number of employees, 8 lockup indicators, and 8 days in lockup.

[3] For the withdrawn responding sample, we supplemented SDC with 36 auditors, 36 assets prior to the offer, 36 VC-presence indicators, 25 revenues prior to the offer, and 9 number of employees prior to the offer. In addition, we made 6 corrections to revenue reported in SDC and 2 corrections to the number of employees reported in SDC.

Table I
Summary Statistics

The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002. Size is based upon revenues prior to the issue for attempted IPOs and 2002 revenues for private firms. Founding Year is the year the firm was founded. High-Tech is an indicator variable that equals 1 (100%) if the firm is in a high-technology industry and 0 otherwise. Underwriter Prestige rankings are from Jay Ritter's underwriter database. Venture Capital is an indicator variable that equals 1 (100%) when a VC backs the IPO firm and 0 otherwise. Ownership Decrease measures the insiders' (managers') ownership percentage decrease in the IPO. Overhang is defined as the quantity of shares outstanding prior to the issue minus secondary shares offered in the IPO all divided by total shares offered in the IPO. High IPO Demand is an indicator variable that equals 1 (100%) if the final offer price is above or equal to the original mid-filing price and 0 otherwise. Hot Initial Return IPO is an indicator variable that equals 1 (100%) when a firm's initial return (from the offer price to the first closing price) is greater than 10% and 0 otherwise.

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
Size ($ revenues)	373,333,556	99,219,000	1,117,001,143	0	15,302,000,000
Founding Year	1,977	1,987	27	1,849	2,002
High-Tech (%)	18.9	0.0	39.2	0	100
Underwriter Prestige	7.96	8.76	1.78	2.10	9.10
Venture Capital (%)	58.3	100	49.5	0	100
Ownership Decrease (%)	−24.1	−23.1	11.0	−59.4	7.9
Overhang	5.0	4.7	2.9	0.2	20.1
High IPO Demand (%)	48.2	0.0	50.3	0	100
Hot Initial Return IPO (%)	54.2	100	50.1	0	100

revenues. In subsequent tables firms are classified as large if they have revenues over $100 million. The average (median) firm in our sample has $373 million ($99 million) in revenues.[4] The second control is firm age (*Age*). Firms with a founding year of 1987 (the median) or earlier are considered old. The third variable, *High-Tech*, is an indicator variable that equals 1 when the firm is a high-technology firm and 0 otherwise. We follow Field and Hanka (2001) and identify high-tech firms using three-digit SIC codes of 357, 367, 369, 382, 384, and 737. High-tech firms comprise nearly 19% of the sample. The conditioning variables *Size*, *Age*, and *High-Tech* are available for all three IPO-status subsamples.

The next two conditioning variables are available only for firms that attempted to go public (either successfully or unsuccessfully). To control for possible certification effects in IPOs (i.e., prestigious underwriters and venture capitalists), we rely on an *underwriter prestige* metric and a VC indicator variable. For *Underwriter Prestige*, we use rankings provided on Jay Ritter's website and define high-prestige underwriters as having a score of 8.1 or greater. When a firm has multiple lead underwriters, we average the scores. The average

[4] We confirm the maximum and minimum revenue numbers. The zero revenue is accurate and applies to two firms. To keep our promise of confidentiality, we cannot specifically name these firms or give characteristics about them that might allow identification.

underwriter rating is 7.96 (median = 8.76), indicating that firms in our sample tended to use reputable underwriters. *Venture Capital* is an indicator variable that equals 1 when an IPO has VC backing and 0 otherwise. Fifty-eight percent of our withdrawn and successful firms had VC backing.

The final four conditioning variables—*Ownership Decrease*, *Overhang*, *IPO Demand*, and *Initial Return*—are available only for the successful IPO sample. *Ownership Decrease* represents the total decrease in insider (manager) shareholdings in the IPO. We cut the sample into large and small based on the median—a 23% decrease. *Overhang* measures the size of the public float and is defined as the quantity of shares outstanding prior to the offer minus the number of secondary shares all divided by the total shares offered in the IPO (see Bradley and Jordan (2002)). The mean (median) overhang is 5.0 (4.7). We classify high-overhang companies as those above the median. We define *IPO Demand* as high if the final offer price is above or equal to the original mid-filing price and low otherwise. Forty-eight percent of the firms in the sample are classified as high-demand firms. Finally, we compute the *Initial Return* as the percent return from the offer price to the first closing price on CRSP. We follow Krigman, Shaw, and Womack (1999) and define a cold IPO as having an *Initial Return* of less than 10% and a hot IPO as otherwise. Based on initial returns, 54% of the successful IPOs are classified as hot IPOs.

In our following tables, we perform univariate analyses on each survey question based on each conditioning variable, as well as *IPO Status*.[5] Several of the conditioning variables are significantly correlated. Due to these correlations, we also perform multivariate logistical regressions on each survey question, using each of the conditioning variables as independent variables. For example, if we detect a significant difference in the response to our first question between the successful and not-tried IPO samples, we test robustness by conducting a multivariate logistical regression with the CFO responses to the first question as the dependent variable and with IPO status, size, age, etc. as the independent variables. Using this method, we are able to confirm which conditioning variables actually influence the survey results. We conduct such multivariate tests for each survey question, and find that our conclusions are robust to the multivariate specifications.[6]

[5] We include only the conditioning variables in subsequent tables that provide interesting results. In addition to our reported conditioning variables, we also examined CFO responses based on (1) whether secondary shares were included in the IPO, (2) offering expenses, (3) underwriter spreads, (4) 1-year abnormal returns (using the Barber, Lyon, and Tsai (1999) method), (5) lockup length, (6) integer offer price (as in Bradley et al. (2004)), (7) number of employees, (8) size of the overallotment option, (9) offer price, (10) auditor, and (11) whether the issue is a unit offering or not.

[6] We also perform multivariate tests to determine if CFO sentiment impacts the cross section of initial returns and 1-year returns. Using survey replies as independent variables and initial and long-run returns as dependent variables, we find no robust significance between CFO perceptions and aftermarket IPO performance. This nonfinding supports efficiency in the pricing of IPOs, indicating insider sentiment has been expressed either directly or indirectly in the prospectus and has been subsumed in the offer price.

C. Limitations of the Survey Method

While the survey method provides insight directly from decision makers, the method is subject to at least three potential limitations. First, the CFO may not represent other insiders. We reason, however, that the CFO is in the best position to understand the IPO process and is generally a high-ranking officer with stock or stock options. Surveying the CFO is consistent with both our research intent and accepted academic practice (e.g., Pinegar and Wilbricht (1989), Trahan and Gitman (1995), and Graham and Harvey (2001)).

Second, sample bias is a possibility. We test for nonresponse bias using methods from Wallace and Mellor (1988) and Moore and Reichert (1983). The early-versus-late responder analysis suggests that our sample is not biased. The respondent-versus-population test shows that based on our conditioning variables, our sample represents the population. The only significant difference is that respondent firms tend to have a lower VC presence (47% vs. 63%). (Appendix B details our survey representativeness analysis.)

Finally, and perhaps most importantly, the 3 years, 2000 to 2002, may not be representative of other time periods. Most of our sample period constitutes a bear market. If our survey questions had been asked just a few years earlier, during the bubble years, CFO perspectives might have been different. It has been documented that financial perspectives can change depending on the market conditions. For example, in Welch (2000) and his subsequent work, Welch shows that financial economist perceptions of the expected equity premium have changed based on market conditions. To the extent that CFO sentiment is market-condition dependent, our results may not generalize to markets that differ from our sample period.[7] Inasmuch as our sample period limits the generality of our results, the prospect for a subsequent longitudinal study seems warranted.

II. Motivations for Going Public

Little empirical research exists on why companies go public. Only Pagano, Panetta, and Zingales (1998) directly test for factors that contribute to a firm's decision to go public by using a proprietary database of private Italian firms and comparing it to public Italian firms. In a less direct approach, Brau, Francis, and Kohers (2003) compare firms that choose to conduct an IPO versus private firms that choose to be acquired by a public firm. The survey method allows us to directly ask CFOs why they go public and compare their responses to existing theories.

Academic theory suggests four motivations for going public. First, the cost of capital literature (e.g., Scott (1976) and Modigliani and Miller (1963)) argues

[7] In an attempt to determine if our findings are robust to other time/market periods, we ask an identical set of questions as in Krigman et al. (2001) who surveyed CFOs from 1993 to 1995. For this survey question (the only one with a direct comparison), we find that our results are consistent with the 1993 to 1995 period.

that firms conduct a public offering when external equity will minimize their cost of capital (thereby maximizing the value of the company). Based on asymmetric information and possible stock price misevaluation, Myers and Majluf (1984) and Myers (1984) further argue for a pecking order of financing: internal equity, debt financing, and then external equity.

Second, Zingales (1995) and Mello and Parsons (2000) argue that an IPO allows insiders to cash out. Ang and Brau (2003) demonstrate that insiders opportunistically sell shares in the IPO for personal gain. Additionally, Black and Gilson (1998) argue that the IPO gives VCs the opportunity to exit, providing an attractive harvest strategy.

Third, IPOs may facilitate takeover activity. Zingales (1995) argues that an IPO can serve as a first step toward having a company taken over at an attractive price. Brau et al. (2003) argue that IPOs may be important because they create public shares for a firm that may be used as "currency" in either acquiring other companies or in being acquired in a stock deal.

Fourth, IPOs may serve as strategic moves. Chemmanur and Fulghieri (1999) argue that IPOs broaden the ownership base of the firm. Maksimovic and Pichler (2001) assert that firms conduct IPOs to capture a first-mover advantage. They also suggest that an IPO can increase the publicity or reputation of the firm going public. Finally, Bradley, Jordan, and Ritter (2003) show that analyst recommendations are often biased upward after an IPO. Analyst coverage may thus motivate a firm to conduct an IPO.

The CFOs were asked to indicate on a five-point scale (1 = not important; 5 = very important), "How important were/are the following motivations for conducting an IPO?" Table II reports the results. In the table we first report the overall mean, followed by the percentage of respondents that view the motivation as important (i.e., respond 4 or 5).[8]

Somewhat surprisingly, but consistent with a conjecture of Brau et al. (2003), CFOs feel most strongly (mean = 3.56; % agreeing = 59) that an IPO serves to create public shares for use in future acquisitions. CFOs from all three IPO-status subsamples support this finding—the withdrawn sample ranks it first and the successful and not-tried samples rank it second.[9] Only one other item—the establishment of market price or value of the firm—received support from at least half of the CFOs. The establishment of a market price may also serve as the first step in the acquisition process (Zingales (1995)). Thus, the first two reasons given strongly support the notion that IPOs serve as potential acquisition posturing.

To further explore acquisition motives for going public, we analyze subsequent merger and acquisition (M&A) activity for our sample of IPOs and

[8] We have analyzed medians, standard deviations, full frequency distributions, multivariate logistic regressions, and chi-square tests for each question. For the sake of brevity, we do not include all of these statistics.

[9] We conduct Tukey and Bonferonni simultaneous difference tests to determine if the various subsample means reported in Table II are significantly different. For example, with respect to the use of public shares for future acquisitions, the withdrawn sample (mean = 4.00) is significantly greater than the not-tried sample (mean = 3.37) at the 5% level.

Table II

Survey Responses to the Question: How Important Were/Are the Following Motivations for Conducting an IPO?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. Size is based on revenues, with large firms over $100,000,000. Firms with founding dates before 1987 are considered old. High-Tech represents high-technology firms. An Underwriter Prestige ranking of high represents firms with underwriters who are rated over 8.1 in Jay Ritter's underwriter database. Venture Capital is an indicator variable that equals 1 when a VC backs the IPO firm and 0 otherwise. Ownership Decrease is assigned large if the insiders' (managers') ownership percentage decreases by more than the sample median (23%). ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Age		High-Tech		Underwriter Prestige		Venture Capital		Ownership Decrease	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Small	Large	Young	Old	No	Yes	Low	High	No	Yes	Small	Large
To create public shares for use in future acquisitions	3.56	59.41	4.00[a]	3.48	3.37[b]	3.72	3.38*	3.76	3.29**	3.48	3.77	3.37	3.75	3.47	3.79	3.49	3.44
To establish a market price/value for our firm	3.39	51.17	3.54[a]	3.57[a]	2.93[b]	3.47	3.25	3.48	3.05**	3.28	3.63*	3.47	3.57	3.45	3.61	3.80	3.25**
To enhance the reputation of our company	3.27	49.11	3.62[a]	3.44[a]	2.67[b]	3.56	2.85***	3.38	2.85**	3.03	3.75***	3.38	3.53	3.21	3.69**	3.89	3.31**
To minimize our cost of capital	3.12	42.51	3.30	3.02	3.15	3.12	3.17	3.16	3.20	3.28	2.85*	3.52	3.01*	3.21	3.09	2.82	3.20
To broaden the base of ownership	3.11	45.89	3.16	3.28	2.76	3.19	2.93	3.15	3.07	3.06	3.14	2.97	3.28	2.98	3.36	3.31	3.14
To allow one or more principals to diversify personal holdings	2.99	44.11	2.62[a]	2.91	3.43[b]	2.84	3.18	2.97	3.12	3.01	2.89	2.83	2.81	2.84	2.80	3.06	2.83
To attract analysts' attention	2.71	29.76	2.97[a]	2.89[a]	2.15[b]	2.98	2.32***	2.86	2.24***	2.51	3.09***	2.79	2.94	2.66	3.07*	3.09	2.69
To allow venture capitalists (VCs) to cash out	2.54	32.15	2.92	2.56	2.17	2.60	2.43	2.82	1.93***	2.44	2.65	1.93	2.89***	1.91	3.14***	2.97	2.24**
Our company has run out of private equity	2.50	27.55	2.41	2.61	2.37	2.76	2.18***	2.71	2.34	2.57	2.38	3.14	2.40**	2.38	2.71	2.53	2.91
Debt is becoming too expensive	2.11	14.29	1.86	2.08	2.35	1.96	2.35**	2.02	2.20	2.25	1.87**	2.52	1.86**	2.40	1.77***	1.74	2.29**

compare it to a benchmark portfolio of non-IPOs. Newly issued shares may theoretically permit an IPO to be either an acquirer or a target, particularly in stock-financed deals. We test three main hypotheses. First, IPOs are acquirers more often than they are targets. Second, IPOs are acquirers more often than benchmark firms are acquirers. Third, IPOs are targets more often than benchmark firms are targets. We pair-match each of our IPO firms to a benchmark firm that has not issued equity (IPO or seasoned equity offer) for the preceding 5 years. We match pairs based on market capitalization, book-to-market equity, and industry using CRSP and Compustat. We obtain M&A data from SDC's M&A database through the end of July 2004.

Our analysis indicates that IPO firms were acquirers 141 times and targets only 18 times (chi-square p-value = 0.0001), suggesting that an IPO primarily enables the firm to acquire another company rather than positioning itself to be acquired. Next, IPO firms were involved in 141 acquisitions compared to only 96 acquisitions for benchmark companies ($p = 0.0035$), consistent with our hypothesis that IPOs facilitate acquisition activity. In contrast, an IPO does not position issuers to be targets more often than their counterpart benchmark firms (18 IPOs vs. 17 benchmarks, $p = 0.8658$).

In those deals in which we could identify the method of payment (155 deals), acquisitions that involved stock financing were more common in the IPO sample (44 IPOs vs. 24 benchmarks; $p = 0.0153$). This result is consistent with the CFO responses that indicate forming a currency of stock for takeovers is the major reason for conducting an IPO. In addition to stock deals, the capital raised in the IPO may also facilitate cash acquisitions. In our sample for cash acquisitions, IPOs served as acquirer 50 times versus 37 times for the benchmark firms ($p = 0.1634$).[10]

The fact that cost of capital motivations received relatively low scores is noteworthy. CFO desire to minimize the cost of capital received a mean score of 3.12 and ranked fourth among motivations. Fewer than half of the CFOs viewed the goal of minimizing the cost of capital as an important rationale for going public. The other two questions that pertain to financing operations—our company has run out of equity and debt is becoming too expensive—were viewed as the two least important reasons.

Examining the conditioning variables reveals that enhancing firm reputation and attracting analysts' attention motivate smaller, younger, high-tech, and VC-backed firms more than their counterparts. In contrast, CFOs in firms with large insider holdings decreases in the IPO are less concerned about enhancing the reputation of the firm or establishing a market price. Given many VCs publicly state that an IPO is an integral part of their harvest strategy, the finding that firms with VC presence rank four motivations higher than the opportunity "to allow VCs to cash-out" (mean = 3.14, only 32% agreeing) is surprising.

[10] For 47 IPO acquisitions and 35 benchmark acquisitions, the method of payment was not identified.

Finally, simultaneous difference tests show that the withdrawn and successful CFOs frequently differ from the not-tried sample. Indeed, we find throughout the study CFOs that attempted an IPO (whether they were successful or not) often disagree with the not-tried CFOs. For instance, the highest ranked motivation according to not-tried CFOs is the opportunity for principals to diversify holdings. This motivation is ranked sixth and eighth for successful and withdrawn CFOs, respectively. Further, CFOs at not-tried companies are not as worried about their companies' perceived market value or reputation.

Inasmuch as theories should be robust to all rational decision-makers, we find the disparities between CFOs based on *IPO Status* to be of interest. One explanation for this difference may be that rational not-tried CFOs choose to work for firms that are better off not going public. Thus, by self-selection, these insiders feel different about the IPO process than CFOs who attempt to go public due to the specific characteristics of their firms. An alternative explanation relies on the notion of behavioral finance and suggests that CFOs do not always act along the rational expectations paradigm. Another explanation may be simple rational information (opinion) heterogeneity among the CFOs.[11]

III. Factors That Influence IPO Timing

Ibbotson and Jaffe (1975), Ritter (1980), and others show that IPOs come in waves. In this section, we discuss three theoretical domains that explain the timing of IPOs. First, managers take advantage of bull markets and attempt to capture attractive stock prices. Empirical measures of bull markets include current overall market conditions (Lucas and McDonald (1990)), current industry conditions (Pagano et al. (1998)), predicted overall market conditions (Lucas and McDonald (1990)), predicted industry conditions (Lowery (2002)), and recent historical market conditions (Ritter and Welch (2002)).[12] Using long-run returns, Ritter (1991) and Loughran and Ritter (1995) posit that firms time IPOs to take advantage of favorable windows that allow them to get the most attractive offering prices.

Second, timing is driven by the attractiveness of the IPO market. Lowery and Schwert (2002) argue that recent first-day stock performance of firms going public leads other firms to decide to go public. Choe, Masulis, and Nanda (1993) argue that firms prefer to go public when other good firms are currently issuing.

Third, Choe, Masulis, and Nanda (1993) and Lowery (2002) argue that firms go public when they reach a certain point in the business growth cycle and need external equity capital to continue to grow.

[11] A final possibility is that going through the IPO process changes the perceptions of CFOs. That is, prior to going through the IPO process, we would expect CFOs to hold the priors of the not-tried sample. However, after going through the IPO process, CFOs hold significantly different perceptions than their not-tried counterparts as a result of their experience.

[12] In our surveys, we combine these various ideas into two questions: (1) overall stock market conditions and (2) industry conditions. We felt dividing these two reasons into historical, current, and predicted would add confusion to the question asked of CFOs.

The CFOs were asked to indicate on a five-point scale (1 = not important; 5 = very important), "To what extent do the following influence the *timing* of a possible IPO?" Table III reports the CFO responses. Overall stock market conditions were identified as the single most important determinant of timing (mean = 4.21; % agreeing = 83). This finding is consistent regardless of how the sample is partitioned. Two other factors were also perceived as strongly influencing the timing of an IPO: industry conditions (3.87; % agreeing = 70) and the need for capital to support growth (3.82; % agreeing = 66).

The final two explanations—other good firms currently going public and first-day stock performance of recent IPOs—were viewed as relatively unimportant. Less than one in four CFOs attributed importance to these two factors. The data suggest that CFOs do pursue windows of opportunity, but they define these windows in terms of overall stock market and industry conditions and not by the IPO market. An analysis of conditioning variables yields three additional insights. First, smaller firms are particularly dependent on IPOs to obtain capital to fund continued growth. Smaller firms also rely more heavily on other good firms going public as an indicator of good timing, perhaps in an effort to increase their own reputation by being grouped with good firms. Second, the inclusion of venture capitalists in the IPO process raises managerial awareness of each timing factor. For four of the five factors, the influence on the timing of an IPO is statistically greater for VC-backed firms. Third, the partition by ownership decrease indicates CFOs at large-decrease companies are less concerned with exploiting windows of opportunity, and are apparently more interested in immediate proceeds than in market timing.

IV. Underwriter Selection in IPOs

Examining why firms switch underwriters between an IPO and secondary offering, Krigman et al. (2001) survey CFOs and ask them to rank various criteria used to select an IPO underwriter. We use the same survey questions as Krigman et al. (2001) for three reasons. First, identical questions allow us to gauge the level of consistency in CFO sentiment in a pre-bull period (1993 to 1995) and a post-bull period (2000 to 2002). Second, by using a five-point scale to assess the importance of each criterion (instead of a ranking scheme), we can determine both absolute and relative importance of the criteria used to select a lead IPO underwriter. Finally, we are able to extend Krigman, Shaw, and Womack's work, which surveys only firms that successfully conducted an IPO, to include CFOs from successful, withdrawn, and not-tried firms.

The CFOs were asked to indicate on a five-point scale (1 = not important; 5 = very important), "How important are/were the following criteria in selecting a lead IPO underwriter?" CFO responses show that the principal intermediary role (i.e., the ability to provide the expertise needed to carry out a successful IPO) is the core issue considered in selecting an underwriter (see Table IV). Three criteria received mean scores greater than 4.0: overall reputation (mean = 4.39, % agreeing = 91), quality of research (4.25, 83%), and industry expertise (4.24, 88%). Each of these most-important criteria emphasizes

Table III

Survey Responses to the Question: To What Extent Did/Do the Following Influence the Timing of a Possible IPO?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. Size is based on revenues with large firms over $100,000,000. An Underwriter Prestige ranking of high represents firms with underwriters who are rated over 8.1 in Jay Ritter's underwriter database. Venture Capital is an indicator variable that equals 1 when a VC backs the IPO firm and 0 otherwise. Ownership Decrease is assigned large if the insiders' (managers') ownership percentage decreases by more than the sample median (23%). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Underwriter Prestige		Venture Capital		Ownership Decrease	
	Mean	%4–5	Withdrawn	Successful	Not Tried	Small	Large	Low	High	No	Yes	Small	Large
Overall stock market conditions	4.21	82.94	4.51	4.06	4.26	4.23	4.21	3.93	4.30	3.90	4.43***	4.51	3.78***
Industry conditions	3.87	69.82	4.14[a]	3.59[b]	4.17[a]	3.81	3.99	3.48	3.87	3.56	3.91	3.94	3.43*
We will need the capital to continue to grow	3.82	66.47	3.97	3.80	3.72	4.04	3.51***	4.37	3.71**	3.57	4.09**	3.71	4.08
Other good firms are currently going public	2.53	24.26	2.92	2.44	2.37	2.76	2.21***	2.14	2.74**	2.08	2.94***	3.00	2.09***
First-day stock performance of recent IPOs	2.17	13.02	2.49	1.98	2.28	2.16	2.18	1.76	2.26**	1.79	2.37***	2.43	1.74**

underwriter reputation and expertise. CFOs that select high-prestige underwriters attach a significantly higher level of importance to these three selection criteria than their counterparts. By contrast, CFOs that opt for low-prestige underwriters are significantly more concerned about valuation promises and fee structure.[13]

Three other selection criteria received mean scores greater than 3.0, indicating that they are somewhat important in screening potential underwriters. An underwriter's market making and trading desk services are an important consideration for just over half of the CFOs, suggesting that post-IPO trading service is an important consideration in the up-front selection of an underwriter. Similarly, about half of the CFOs carefully weigh the institutional client base of the underwriter. The quality of the institutional client base provides a secondary measure of the underwriter's prestige and promotes future tradability of the stock. Finally, slightly fewer than half of the CFOs are influenced by pricing and valuation promises. Apparently, most CFOs believe that if a capable and reputable underwriter is selected, the stock valuation/pricing will fall in a reasonable and acceptable range.

Comparing our results to those of Krigman et al. (2001, Table 6, p. 270) shows strong consistency across time periods. CFOs rank the first three reasons in the same order in both studies. After the first three reasons, we experience a large drop-off in the percentage of CFOs agreeing (a drop from 87.5% to 55.6%). Krigman, Shaw, and Womack show a similar drop. Both sets of CFOs also rank retail clientele and nonequity-related services near the bottom of selection criteria. In addition to Krigman, Shaw, and Womack's questions, we ask CFOs to indicate how they view an underwriter that has a reputation of spinning. Most CFOs do not view spinning as an important criterion; however, a group of nearly 9% of the CFOs strongly agreed that spinning was an important criterion.

CFOs that have attempted to go public (either successfully or unsuccessfully) place more emphasis on the underwriter's research capability. Their not-tried counterparts are much more concerned about valuation promises and fee structure. Further, while not-tried CFOs rely on overall underwriter reputation, an analysis of their response profile reveals that they are somewhat skeptical of the underwriting process. The data also suggest that CFOs in large firms tend to be more concerned with fee structure, nonequity-related services, and a reputation of spinning, and are less concerned with the quality of the research analyst.

[13] To ensure that the high- and low-prestige findings are not confounded by a size effect, we conduct further univariate and multivariate tests. We subdivide the sample into thirds, quartiles, quintiles, and deciles and perform Tukey and Bonferonni simultaneous difference tests on the underwriter selection question. In each case, we find that our underwriter prestige statements are not driven by a size effect. Additionally, we estimate multivariate logit models with the underwriter selection question responses as the dependent variables. When we use *Size* and *Underwriter Prestige* as independent variables, again our finding is not driven by a size effect. For example, when the first response (underwriter's overall reputation and status) is the dependent variable, the *Size* coefficient has a nonsignificant p-value of 0.8377 and the *Underwriter Prestige* coefficient is positive and has a p-value of 0.0010.

Table IV

Survey Responses to the Question: How Important Were/Are the Following Criteria in Selecting a Lead IPO Underwriter?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. Size is based on revenues with large firms over $100,000,000. An Underwriter Prestige ranking of high represents firms with underwriters who are rated over 8.1 in Jay Ritter's underwriter database. Overhang is defined as the quantity of shares outstanding prior to the issue minus secondary shares offered in the IPO all divided by total shares offered in the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Underwriter Prestige		Overhang	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Small	Large	Low	High	Low	High
Underwriter's overall reputation and status	4.39	90.58	4.46	4.40	4.33	4.40	4.35	4.03	4.53**	4.24	4.65**
Quality and reputation of the research department/analyst	4.25	82.53	4.35[a]	4.41[a]	3.87[b]	4.34	4.10*	3.78	4.56***	4.26	4.58*
Underwriter's industry expertise and connections	4.24	87.50	4.38	4.15	4.28	4.24	4.23	3.93	4.30**	4.06	4.19
Market making, trading desk, and liquidity provision services	3.50	55.62	3.46	3.45	3.61	3.50	3.47	3.24	3.49	3.42	3.39
Institutional investor client base of the underwriter	3.50	56.89	3.70	3.32	3.65	3.48	3.48	3.03	3.54*	3.38	3.13
Pricing and valuation promises	3.24	44.97	3.16[a]	3.01[a]	3.72[b]	3.14	3.31	3.50	2.86***	3.14	2.74
Fee structure	2.75	24.85	2.49[a]	2.43[a]	3.54[b]	2.49	3.01***	2.93	2.22***	2.54	2.13*
Retail client base of the underwriter	2.67	20.24	2.68	2.49[a]	2.98[b]	2.62	2.74	2.93	2.43*	2.65	2.26
Nonequity-related services (e.g., advice on M&A, debt)	2.54	13.69	2.51	2.42	2.78	2.40	2.76**	2.18	2.56*	2.41	2.39
Underwriter has a reputation for spinning	1.86	8.54	1.70[a]	1.58[a]	2.52[b]	1.64	2.18***	1.79	1.56	1.70	1.32*

Large firms have more reputation capital to lose and need less analyst praise than smaller firms that are trying to gain a positive reputation. Additionally, high-overhang companies (i.e., high-retention IPOs) give an elevated credence to underwriter reputation and expertise and less to fee structure and spinning, seemingly placing more confidence in their underwriters. Firms are willing to pay for and trust the work of highly reputable investment banks. For many CFOs, the high-prestige designation appears to be a surrogate for an extensive underwriter selection process, that is, they place faith in the underwriter's market reputation, reducing the need to conduct extensive pre-selection analysis of an underwriter's capability.

V. Underpricing in IPOs

Numerous explanations for underpricing have been advanced. For clarity, we form eight subgroups based on their underlying premise. First, asymmetric information between the underwriter and the issuer leads to underpricing. Baron and Holmstrom (1980) and Baron (1982) argue that underwriters exploit superior market knowledge to underprice issues, minimize marketing effort, and ingratiate themselves with buy-side clients.

Second, underpricing exists due to asymmetric information between issuers and potential investors. Beatty and Ritter (1986) argue that investor uncertainty about the IPO firm biases offering prices lower than the unknown future market price. Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Spatt and Srivastava (1991) argue that underpricing rewards sophisticated investors for divulging accurate valuation information during the book-building process.

Third, underpricing occurs because of asymmetric information between informed and uninformed investors. Rock (1986) argues that the risk of the IPO drives underpricing and that uninformed investors must be compensated for participating in the IPO.

Fourth, underpricing serves as a protection against possible future litigation from investors (Tinic (1988), Hughes and Thakor (1992), and Drake and Vetsuypens (1993)).

Fifth, underpricing may serve a marketing function. Welch (1992) models the idea that underpricing can cause a domino or cascade effect among investors that raises demand for the issue. Habib and Ljungqvist (2001) argue that underpricing allows for cost savings in other areas of marketing the issue. Demers and Lewellen (2003) assert that underpricing brings attention to the stock on the opening day. Boehmer and Fishe (2001) demonstrate that underpricing increases the after-issue trading volume of the stock.

Sixth, underpricing broadens the ownership base after the IPO. Booth and Chua (1996) propose that underpricing helps ensure a wide base of owners to increase the liquidity of the newly public firm. Brennan and Franks (1997) agree that underpricing allows for a wide base of owners but argue that the motivation is to entrench management. Stoughton and Zechner (1998) argue

that underpricing allows for the creation of a block holder that can increase monitoring.

Seventh, underpricing may facilitate questionable practices. Maynard (2002) and Griffith (2004) suggest that underpricing permits spinning—the enriching of executives of prospective investment bank clients. Aggarwal (2003), Fishe (2002), and Krigman et al. (1999) argue that underpricing allows for the practice of flipping by favored investors. Ljungqvist and Wilhelm (2003) assert that underpricing enriches friends and family through directed share programs.

The eighth and final explanation is a somewhat unique stance taken by Loughran and Ritter (2002), who advance a behavior theory that suggests issuers are pleasantly surprised with the amount they can raise in the IPO (i.e., their new-found personal wealth). Under prospect theory, they are not significantly concerned with underpricing and therefore it exists.

In our study, we explore two underpricing issues, specifically, expectations and explanations. The CFOs were asked to indicate "the percent underpricing they would expect from the offer price to the first-day closing price." The median (mean) expected underpricing was 10.0% (14.9%). This expectation compares to an actual median (mean) underpricing of 13.5% (27.8%) for the companies that completed an IPO. Across the three samples, the expectation of underpricing is fairly consistent. Relying on the median value of observed underpricing to control for outliers, CFO feedback suggests they are well informed on underpricing expectations.

Regarding explanations, CFOs were asked to indicate on a five-point scale (1 = not important; 5 = very important), "To what extent do/did the following lead to the level of underpricing you expect(ed)?" Consistent with Beatty and Ritter (1986), the results in Table V show that the majority of CFOs indicate that underpricing serves to compensate investors for taking the risk of the IPO (mean = 3.47, % agreeing = 59). This result is somewhat surprising in light of the historical positive immediate return to IPO investors. CFOs view three other rationales as important sources of underpricing: a desire on the part of underwriters to incur the favor of institutional investors (3.20, 42%), a desire to achieve a wide base of owners (3.17, 41%), and a desire to increase post-issue trading volume (3.14, 43%). Of these, only underpricing to incur the favor of institutional investors appears to be an intentional effort on the part of underwriters to profit from underpricing. CFOs attribute most underpricing to market uncertainty and the lack of perfect information. The low scores for flipping, reducing IPO marketing costs, and spinning indicate that CFOs generally place a high degree of confidence in their underwriters and the underwriting process.

When we test based on the conditioning variables, we find that CFOs at not-tried companies are more skeptical of underpricing than CFOs who have successfully completed an IPO. They place more weight on a variety of issues that suggest underpricing is opportunistic rather than a function of risk and uncertainty. For example, not-tried CFOs give significantly higher ratings to the following issues: the desire to increase publicity on the opening day, mitigate future litigation by investors who claim that the offer price was too

Table V

Survey Responses to the Question: To What Extent Did/Do the Following Lead to the Level of Underpricing You Expect?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. Size is based on revenues with large firms over $100,000,000. Overhang is defined as the quantity of shares outstanding prior to the issue minus secondary shares offered in the IPO all divided by total shares offered in the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Overhang	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Small	Large	Low	High
To compensate investors for taking the risk of the IPO	3.47	59.49	3.44	3.50	3.45	3.40	3.55	3.56	3.40
Underwriters underprice to incur the favor of institutional investors	3.20	42.21	3.32	3.18	3.15	3.21	3.17	3.20	3.07
To ensure a wide base of owners	3.17	40.77	3.00	3.28	3.11	3.18	3.13	3.23	3.33
To increase the post-issue trading volume of the stock	3.14	42.85	3.21	3.04	3.29	3.01	3.29	3.12	2.87
To increase publicity on the opening day	2.59	22.87	2.79	2.32^{a}	2.95^{b}	2.52	2.70	2.42	2.13
To increase stock price by starting a cascade effect among investors	2.50	18.07	2.70	2.27^{a}	2.79^{b}	2.30	2.83***	2.50	1.93**
To mitigate future litigation by investors who claim the offer price was too high	2.23	13.55	2.39	2.00^{a}	2.50^{b}	2.08	2.42**	2.14	1.69**
To compensate investors for truthfully revealing price they are willing to pay	2.19	10.25	1.94^{a}	2.08^{a}	2.58^{b}	2.12	2.31	2.20	1.79*
Insiders are willing to underprice because the IPO creates personal wealth	2.14	14.19	2.00	1.97^{a}	2.53^{b}	2.01	2.35*	2.20	1.60**
So underwriters can make flipping possible	2.06	11.92	1.94	1.91^{a}	2.43^{b}	1.88	2.28**	1.88	1.90
Underpricing reduces the need for additional IPO marketing costs	2.03	6.58	2.03	1.86^{a}	2.36^{b}	1.93	2.16	1.95	1.63
So underwriters can make spinning possible	1.86	5.97	1.79^{a}	1.61^{a}	2.36^{b}	1.69	2.05**	1.68	1.40
To create a large blockholder to serve as a watchdog over management	1.71	0.64	1.74	1.54^{a}	1.97^{b}	1.63	1.82	1.66	1.30**

high, increase personal wealth, make flipping possible, reduce the need for additional marketing costs, and make spinning possible. Taken in aggregate, these differences suggest that not-tried CFOs are wary of underpricing in the IPO process.

Table V also indicates that CFOs at larger firms give greater credence to explanations that focus on the cascade effect, future litigation, the creation of personal wealth, flipping, and spinning than do their counterparts. This evidence again suggests that larger firms are concerned with building and maintaining strong reputation capital. By contrast, CFOs at firms that retain more ownership (high-overhang firms) are less concerned about the dynamics of underpricing because they have floated relatively smaller issues.

VI. Signaling in IPOs

Due to asymmetric information between IPO insiders and potential investors, signaling theory continues to be an important component of IPO research. Early papers, such as Leland and Pyle (1977), argue that selling insider shares and selling a large portion of the firm in the IPO served as negative signals to potential investors. Since that time, other researchers have used the context of IPOs to advance signaling theory. Within signaling theory is the idea of certification. Generally, using prestigious underwriters (e.g., Booth and Smith (1986), Carter and Manaster (1990), Carter, Dark, and Singh (1998)), using a reputable accounting firm (e.g., Titman and Trueman (1986), Beatty (1989), Michaely and Shaw (1995)), and having VC backing (e.g., Megginson and Weiss (1991) and Barry et al. (1990)) serve as strong signals or certification that the firm going public is a good firm.

Three other positive signals are proposed in the literature. First, Welch (1989), Allen and Faulhaber (1989), and Chemmanur (1993) model that only good firms can afford to dissipate wealth by underpricing. Second, Courteau (1995) and Brau, Lambson, and McQueen (2005) model that insiders who commit to a long lockup—a period of time after the IPO in which insiders agree not to sell personal shares—signal firm quality. Third, Teoh, Welch, and Wong (1998) suggest that a history of strong earnings signals future strong performance.

To gain insight into how CFOs view these signals, they were asked to indicate on a five-point scale (1 = negative signal, 5 = positive signal), "What *type of signal* do the following actions convey to investors regarding the value of a firm going public?" The results in Table VI show that CFOs identify six positive signals and three negative signals. From the perspective of CFOs, the most important positive signal is a strong history of earnings (mean = 4.51; % agreeing = 91); past success is viewed as the best indicator of future returns. This fact may promote window dressing designed to make a company's past performance look as good as possible (see Teoh et al. (1998)). Certification is also perceived as a very strong positive signal. A prestigious investment banker is the most credible partner (mean = 4.21; % agreeing = 89), followed by the use of a big-four accounting firm (3.91; 74%) and the backing of a VC firm (3.24; 40%).

Table VI

Survey Responses to the Question: What Type of Signal Do the Following Actions Convey to Investors Regarding the Value of a Firm Going Public?

Means are based on a five-point scale with anchors of 1 = negative signal to 5 = positive signal. Size is based on revenues with large firms over $100,000,000. Venture Capital is an indicator variable that equals 1 when a VC backs the IPO firm and 0 otherwise. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Venture Capital	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Small	Large	No	Yes
Having strong historical earnings	4.51	91.13	4.70	4.36	4.64	4.42	4.66**	4.43	4.50
Using a top investment banker	4.21	88.76	4.24	4.29	4.02	4.29	4.11*	4.08	4.44***
Insiders commit to a long lockup	3.99	77.52	4.05	4.00	3.93	4.00	3.96	4.00	4.00
Using a big-four accounting firm	3.91	73.96	3.89	3.95	3.84	3.92	3.93	3.88	4.00
A large first-day stock price jump	3.77	72.46	3.70	3.78	3.80	3.68	3.88	3.81	3.71
Having venture capital (VC) backing	3.24	39.76	3.65[a]	3.14[b]	3.09[b]	3.34	3.10*	2.91	3.56***
Selling a large portion of the firm in the IPO	2.55	11.31	2.54	2.46	2.75	2.53	2.57	2.43	2.50
Issuing units	2.44	6.33	2.37	2.31[a]	2.74[b]	2.39	2.47	2.39	2.25
Selling insider shares in the IPO	1.90	3.57	1.70[a]	1.82[a]	2.25[b]	1.75	2.12***	1.90	1.69

Commitment to a long lockup (3.99; 78%) and a large first-day stock price jump (3.77; 72%) are also viewed as positive signals. The first result is of interest because it counters the work of Brav and Gompers (2003) who dismiss the signaling role of lockups. The second result is of interest because it supports the work of Welch (1989), Allen and Faulhaber (1989), and Chemmanur (1993). Previous empirical literature has refuted the usefulness of underpricing as a signal (Garfinkel (1993), Jegadeesh, Weinstein, and Welch (1993), and Michaely and Shaw (1994)).

The negative signals are (1) selling a large portion of the firm in the IPO, (2) selling insider shares in the IPO, and (3) issuing units. Insiders appear to be cashing out in the first two negative signals (supporting Leland and Pyle (1977)). In the third, by issuing units—offerings in which warrants are attached to the shares of stock at issuance—insiders signal that shares alone are not enough and an attached option is needed in order to float the offer. The unit finding supports Chemmanur and Fulghieri (1997), who argue that high-risk firms issue unit offerings, whereas lower-risk firms issue straight equity, and Schultz (1993), who finds that firms that use unit IPOs are typically less successful and survive less often relative to straight IPOs.

The analysis of conditioning variables shows remarkable agreement among CFOs from the three IPO-status subgroups with respect to both rank and direction of signal, although slight perceptual differences do exist. For example, withdrawn CFOs feel VC presence is a stronger positive signal relative to the other two samples. Not-tried CFOs and CFOs from larger firms are not as critical of the sale of insider shares as their counterparts. Interestingly, CFOs from large firms also place less emphasis on the role of certification, especially with respect to the use of a top investment bank and VC backing, suggesting that they feel their large firms carry sufficient credibility. VC-backed firms naturally feel that VC backing is a stronger positive signal than non-VC firms; however, they still place added emphasis on the use of a prestigious underwriter.

VII. IPO Process Issues

In this section, we address IPO topics that have not generated a large amount of literature but are still of interest. We combine them in one section for brevity. First, we assess the importance of the lockup period as an insider commitment device (see Brav and Gompers (2003)).

Second, we examine the overallotment (Green Shoe) provision, which gives the underwriter the option to buy an additional 15% of shares (over full-allotment) at the offer price for several weeks after the offer. Aggarwal (2000) argues that underwriters use this provision to stabilize the aftermarket trading of IPOs via price support. Zhang (2004) maintains that underwriters use the overallotment option (and an uncovered short position by allocating more than the 115% of shares) to increase an IPO's aftermarket price.

Third, we evaluate the choice of underwriting contract (Mandelker and Raviv (1977), Ritter (1987), Sherman (1992), and Cho (1992)). When a firm goes public, it can conduct a firm-commitment offer or a best-efforts offer. In a firm-commitment offer, the underwriter serves as a dealer, taking personal inventory of all the shares and then reselling them. In a best-efforts arrangement, the underwriter serves as a broker, never taking a personal position.

Fourth, we consider the importance of a unit offering as a process issue. Barry, Muscarella, and Vetsuypens (1991) note that when warrants are granted to underwriters as part of the IPO arrangement, they represent a significant component of the aggregate compensation and drive up the cost of going public. Schultz (1993) argues that unit offers serve to reduce agency conflicts associated with free cash flows.

Finally, we investigate CFO concern regarding the threat of negative accusations stemming from the practice of window dressing in the IPO prospectus. Teoh et al. (1998) demonstrate that reported earnings in the IPO prospectus have a significant impact on investor enthusiasm toward the offer. (Our finding in Section VI that a history of strong earnings is the strongest positive signal provides supporting evidence.) They show that firms that window dressed their financial statements by managing accruals performed significantly worse in the long run than firms that did not inflate earnings.

To gain insight into these IPO process issues, the CFOs were asked to indicate on a five-point scale (1 = not important, 5 = very important), "From your perspective, how important are the following IPO *process issues*?" The data in Table VII show that CFOs clearly prefer a firm-commitment underwriting (mean = 3.93, % agreeing = 72) over a best-efforts underwriting. When an underwriter takes a stake in the IPO, CFO confidence in the underwriter and the IPO process increases. Similarly, CFOs view the lockup period as a relatively important mechanism to align management with future stockholders (3.58, 64%).[14]

CFOs view the overallotment option as somewhat important, although the data (mean = 3.3; % agreeing = 44) suggest that CFOs are not overly concerned about overallotments. Likewise, CFOs do not perceive threats of accusations pertaining to window dressing in the prospectus (2.9; 37%) as an important IPO consideration. This latter result indicates that CFOs are not overly concerned about potential window dressing backlash; however, it does not mean that CFOs discount the importance of window dressing. In fact, the finding in Section VI that insiders feel a history of strong earnings is the most important positive signal may indicate that insiders realize the potential importance of window

[14] Comparing the lockup commitment response of CFOs in this section (3.58, 64%) to the lockup question in the previous section that asks if lockups serve as a positive signal (3.99, 78%) we see that CFOs tend to view the lockup as a signal more than a commitment device (greater at the 5% level of significance). In fact, CFOs rank a long lockup as a stronger positive signal than the certification mechanisms of using a big-four accounting firm or having VC backing. Our results suggest that lockups serve primarily as a signaling device and secondarily as a commitment device.

Table VII

Survey Responses to the Question: From Your Perspective, How Important Are the Following IPO Process Issues?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. An Underwriter Prestige ranking of high represents firms with underwriters who are rated over 8.1 in Jay Ritter's underwriter database. Venture Capital is an indicator variable that equals 1 when a VC backs the IPO firm and 0 otherwise. Ownership Decrease is assigned large if the insiders' (managers') ownership percentage decreases by more than the sample median (23%). *** and ** indicate statistical significance at the 1% and 5% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Underwriter Prestige		Venture Capital		Ownership Decrease	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Low	High	No	Yes	Small	Large
A firm-commitment underwriting as opposed to a best-efforts underwriting	3.93	72.03	4.41[a]	3.69[b]	4.00	3.93	3.94	3.57	4.21***	3.88	3.75
The lockup period to align management with future stockholders	3.58	63.53	3.89[a]	3.38[b]	3.72	3.53	3.52	3.47	3.56	3.40	3.33
The overallotment (Green Shoe) option	3.30	44.04	3.41[a]	3.22[b]	3.39	3.40	3.20	3.18	3.30	3.00	3.31
The threat of accusations pertaining to window dressing in the prospectus	2.89	36.88	3.40[a]	2.39[b]	3.44	3.00	2.56	2.59	2.73	2.03	2.64**
A unit offering	2.25	8.08	2.39	2.00[a]	2.60[b]	2.60	1.95***	2.30	2.00	1.68	2.33**

dressing. Finally, unit offerings are not viewed as an important component of the IPO process (2.3; 8%).[15]

Perhaps as interesting as the overall findings are the comparative perceptions between the withdrawn CFOs and the successful CFOs. CFOs at the withdrawn firms view four of the five issues in Table VII as more important. CFOs at firms that attempted but then withdrew an IPO appear more sensitive to these process issues since these issues can introduce ambiguity and uncertainty into the IPO process, increasing the risk and cost of going public.

VIII. Why Firms Do Not Go Public

Each of the previous sections addresses issues related to the process of going public. Many firms, however, including a large portion (i.e., 63%) of our sample, choose to remain private. Therefore, in this final section, we explore the rationale behind the decision not to go public. We derive most of the survey questions from conjectures in the popular press. For brevity we will not motivate each question here, but proceed immediately to the interpretation of the survey results.

In our mailing to the not-tried CFOs, a unique question was asked: "How seriously has your firm considered an IPO?" The five-point scale ranged from 1 = no interest to 5 = serious interest. The majority of the CFOs (57.6%) replied that their firm has no interest in an IPO. Another 22.4% indicated that their firm has little interest in an IPO. Only about 20% of the not-tried firms indicated that they had interest in an IPO (10% marked 3, 5.7% marked 4, and 4.8% marked 5). This finding indicates that insiders at many private firms have a strong preference to remain private.

To better understand the reasons companies choose to remain private, we asked the CFOs to answer a variant of the following question: "To what extent have the following influenced your decision *NOT* to conduct an IPO?" Specifically, the not-tried CFOs were asked about their decision not to conduct an IPO, the withdrawn CFOs were asked about their decision to withdraw their IPO, and the successful CFOs were asked how much each of the factors concerned them in the IPO process. A five-point scale (1 = no influence; 5 = great influence) was used. The CFO responses are reported in Table VIII.

The aggregate results denote that maintaining decision-making control is the most important issue (mean = 3.48, % agreeing = 56) in deciding whether or not to stay private. Two other issues received mean scores above 3.0 (but less than 50% agreement): to avoid ownership dilution and bad market/industry conditions. While the first two reasons deal with insider control/ownership, the third deals with an exogenous factor, indicating that insiders are most concerned with issues they can affect.

[15] The lack of concern over units may be driven by the small number of unit IPOs in the sample. Only 3% of the withdrawn sample and 7% of the successful sample were unit offers.

Table VIII

Survey Responses to the Question: How Important Were/Are the Following in Your Decision to Withdraw/Not to Conduct the IPO?

Means are based on a five-point scale with anchors of 1 = not important to 5 = very important. Size is based on revenues with large firms over $100,000,000. Firms with founding dates before 1987 are considered old. High-Tech represents high-technology firms. An Underwriter Prestige ranking of high represents firms with underwriters who are rated over 8.1 in Jay Ritter's underwriter database. Venture Capital is an indicator variable that equals 1 when a VC backs the IPO firm and 0 otherwise. IPO Demand is considered high if the final offer price is above or equal to the original mid-filing price and low otherwise. Initial return is the percentage return from the offer price to the first-day market closing price. Firms with an initial return over 10% are considered hot. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Superscripts indicate significant simultaneous differences using Tukey inference tests. Means with the same superscript are significantly different from means with different superscripts. Means without superscripts are not significantly different from the other two means. The sample consists of 336 completed surveys composed of 37 withdrawn IPOs, 87 successful IPOs, and 212 firms that were large enough, but did not attempt to go public during the period 2000 to 2002.

	Overall		IPO Status			Size		Age		Hi-Tech		Underwriter Prestige		Venture Capital		IPO Demand		Initial Return	
	Mean	% 4–5	Withdrawn	Successful	Not Tried	Small	Large	Young	Old	No	Yes	Low	High	No	Yes	Low	High	Cold	Hot
Desire to maintain decision-making control	3.48	55.56	1.72[a]	3.02[b]	4.00[c]	3.24	3.73***	3.06	4.07***	3.61	2.94***	3.24	2.44***	3.04	2.35***	3.02	2.98	3.24	2.73*
To avoid ownership dilution	3.19	47.02	1.51[a]	2.59[b]	3.75[c]	3.06	3.33	2.88	3.72***	3.29	2.72***	2.71	2.13**	2.38	2.19	2.60	2.54	2.61	2.47
Bad market/industry conditions	3.13	48.24	4.76[a]	3.17[b]	2.80[b]	3.21	3.02	3.43	2.74***	3.02	3.55**	3.77	3.56	3.24	3.87**	3.56	2.71**	3.46	2.87*
Disclosing information to competitors	2.78	32.81	1.67[a]	3.06[b]	2.86[b]	2.67	2.88	2.70	2.79	2.73	2.94	2.83	2.58	2.80	2.54	3.02	3.07	3.00	3.11
SEC reporting requirements	2.71	31.56	1.56[a]	2.70[b]	2.92[b]	2.49	2.93***	2.63	2.83	2.76	2.47	2.59	2.33	2.80	2.10***	3.02	2.41**	3.14	2.47***
Already have enough capital	2.65	29.87	1.95[a]	2.22	2.97[b]	2.44	2.88***	2.40	3.04***	2.75	2.29**	2.27	2.08	2.10	2.14	2.19	2.25	2.24	2.16
Costs/fees of an IPO	2.64	27.12	1.67[a]	2.86[b]	2.73[b]	2.69	2.59	2.60	2.68	2.65	2.60	3.10	2.33***	2.96	2.20***	3.09	2.63*	3.24	2.51***
Officer liability (The Sarbanes–Oxley Act)	2.31	19.3	1.75[a]	2.46[b]	2.35[b]	2.19	2.42	2.28	2.34	2.27	2.42	2.50	2.13	2.27	2.18	2.29	2.56	2.31	2.49
Low price of our stock	2.24	19.48	3.36[a]	2.51	1.90[b]	2.29	2.17	2.56	1.83***	2.11	2.78***	2.79	2.72	2.71	2.75	2.86	2.12***	2.89	2.16***
We would prefer to be acquired by another firm	1.96	15.04	1.72	1.70[a]	2.12[b]	2.07	1.88	2.07	1.94	2.00	1.83	2.04	1.62*	1.74	1.71	1.76	1.64	1.69	1.67
To avoid EPS dilution	1.90	9.42	1.53[a]	2.36[b]	1.76[a]	1.92	1.89	1.93	1.78	1.86	2.07	2.28	2.06	2.27	2.00	2.47	2.22	2.51	2.22

The relatively low aggregate scores for the 11 factors result largely from disagreement among the three respondent groups. When partitioned based on IPO status, CFOs from each group possess very strong feelings regarding only a few factors. For example, the not-tried CFOs are determined to maintain decision-making control (mean = 4.00) and avoid ownership dilution (3.75). Any potential benefit from an IPO is outweighed by the risk of a loss of control through an IPO. No overriding issue exists that would lead these decision makers to seriously consider going public. For now, they are satisfied that they have enough capital to finance operations and growth (mean = 2.97) and perceive little value in going public.

The withdrawn CFOs place little emphasis on control and ownership dilution. They had already made the decision to go public. However, broad economic and industry conditions played a decisive role in their decision to withdraw the IPO. Their mean of 4.8 for bad market/industry conditions is the highest score for any question on the survey. Poor market/industry conditions coupled with a low stock price for their company (mean = 3.36) motivated the decision to withdraw. The fact that market and industry conditions ranked first and second, respectively, in the timing decision (see Section III) together with the period over which we administered the survey (2000 to 2002) seems to validate the withdrawn CFO concerns.

Finally, the successful CFOs acknowledge the importance of market/industry conditions, ranking it as their most important concern (mean = 3.17), though the degree of this concern is at a much lower level than that of the withdrawn CFOs. Successful CFOs also concur that the desire to maintain decision-making control was seriously considered before moving forward with the IPO (3.20). The only other factor to receive a score greater than 3 was concern with disclosing information to competitors (3.06). The overall response profile from the successful CFOs indicates that their companies took a measured approach to going public.

When we test based upon the other conditioning variables, desire to maintain decision-making control is most influential among firms that are larger, older, and outside the high-tech environment—firms predisposed to entrenched management. Older companies also place greater emphasis on avoiding ownership dilution. Clearly, some companies perceive themselves as poorly positioned and less inclined to take advantage of an IPO. Further, some firms that are desirous to go public are deterred by poor market conditions and other factors that increase the cost of an IPO. For example, firms with low demand (as measured by an offer price less than the original mid-filing price) and cold IPOs (as measured by initial returns) were more concerned with bad market/industry conditions and SEC reporting requirements.

IX. Summary and Conclusion

CFO survey responses indicate that academic theory regarding the IPO process is generally well grounded. However, the CFO perspectives suggest a need

to revisit and refine several ideas that are commonly held in the IPO literature. Appendix C presents a concise summary of the IPO theories vis-à-vis our survey findings. In the first column we list the theories that we have discussed. In the second column, we summarize the survey results for each theory and assign a value of Strong Support, Moderate Support, or Low Support.

The summarized key conclusions of our research are:

- The most important motivation for going public is to create public shares for use in future acquisitions. Minimizing the cost of capital is not among the three most important motivations for going public.
- Insiders are opportunistic, especially at VC-backed firms. They seek to go public at a time that portends a high stock price. CFOs define the window of opportunity in terms of overall stock market and industry conditions rather than IPO market conditions.
- The underwriter selection process is driven by a very small set of selection criteria, namely, underwriter reputation and IPO process expertise. CFO perceptions on underwriter selection have remained consistent in pre- and post-bubble years.
- CFOs are well informed regarding expected underpricing. They attribute most underpricing to market uncertainty and the need to reward investors for taking the risk of the IPO. Withdrawn and successful CFOs report little concern that underwriters are gaming the IPO process for self-serving benefits; rather, underwriters are performing the traditional intermediary role. Not-tried CFOs are more skeptical.
- The most important positive signal is past historical earnings—this may promote window dressing. However, CFOs view a variety of behaviors that convey insider confidence in the company's future as positive signals. They also perceive certification to be a positive signal. Behaviors that suggest insiders are anxious to cash out are perceived as negative signals.
- While CFOs strongly prefer firm-commitment underwriting, they express few concerns with IPO process issues. CFOs at firms that have withdrawn IPOs are an exception, expressing greater concern with the uncertainty and costs encountered in the IPO process.
- Companies remain private to preserve decision-making control and ownership. However, IPO status (i.e., successful IPO, withdrawn IPO, or not-tried IPO) strongly influences CFO perceptions regarding the risks and difficulties encountered in going public. The experience itself appears to affect managerial perspectives regarding the IPO process.

Appendix A: Example Survey

Survey on Managerial IPO Attitudes

Thank you for taking the estimated 7–9 minutes to complete this survey. *We promise strict confidentiality concerning your responses.* Please answer each of the questions to the best of your ability. If a specific point is particularly proprietary, please feel free to skip that point. Words with an * are defined in the glossary (see back of cover letter)

1. How important were the following *motivations* for conducting the IPO?

	Not Important				**Very Important**
To minimize our cost of capital	1	2	3	4	5
Debt is becoming too expensive	1	2	3	4	5
Our company has run out of private equity	1	2	3	4	5
To create public shares for use in future acquisitions	1	2	3	4	5
To allow one or more principals to diversify personal holdings	1	2	3	4	5
To allow venture capitalists (VCs) to cash out	1	2	3	4	5
To enhance the reputation of our company	1	2	3	4	5
To establish a market price/value for our firm	1	2	3	4	5
To broaden the base of ownership	1	2	3	4	5
To attract analysts' attention	1	2	3	4	5

2. To what extent did the following influence the *timing* of your possible IPO?

	Not Important				**Very Important**
Overall stock market conditions	1	2	3	4	5
Industry conditions	1	2	3	4	5
First-day stock performance of recent IPOs	1	2	3	4	5
Other good firms were currently going public	1	2	3	4	5
We needed the capital to continue to grow	1	2	3	4	5

3. How important were the following criteria in selecting your lead IPO *underwriter*?

	Not Important				**Very Important**
Underwriter's overall reputation and status	1	2	3	4	5
Quality and reputation of the research department/analyst	1	2	3	4	5
Nonequity-related services (e.g., advice on M&A, debt)	1	2	3	4	5
Fee structure	1	2	3	4	5
Pricing and valuation promises	1	2	3	4	5
Underwriter's industry expertise and connections	1	2	3	4	5
Market making, trading desk, and liquidity provision services	1	2	3	4	5
Institutional investor client base of the underwriter	1	2	3	4	5
Retail client base of the underwriter	1	2	3	4	5
Underwriter has a reputation for spinning*	1	2	3	4	5

4. If all options were exercised, what percent of common stock would be owned by the top three officers?

☐ <5% ☐ 5–10% ☐ 10–20% ☐ >20%

5. What percent *underpricing** *did you expect* from the offer price to the first-day closing price?

(*continued*)

Appendix A.—*Continued*

6. To what extent do you feel the following led to the level of *underpricing** you expected?

	Not Important				Very Important
To mitigate future litigation by investors who claim the offer price was too high	1	2	3	4	5
To compensate investors for taking the risk of the IPO	1	2	3	4	5
To ensure a wide-base of owners	1	2	3	4	5
To create a large blockholder to serve as a watchdog over management	1	2	3	4	5
To compensate investors for truthfully revealing the price they are willing to pay	1	2	3	4	5
Insiders are willing to underprice because the IPO creates personal wealth	1	2	3	4	5
To increase stock price by starting a cascade effect among investors	1	2	3	4	5
Underpricing reduces the need for additional IPO marketing costs	1	2	3	4	5
To increase the after-issue trading volume of the stock	1	2	3	4	5
Underwriters underprice to incur the favor of institutional investors	1	2	3	4	5
To increase publicity on the opening day	1	2	3	4	5
So underwriters can make spinning* possible	1	2	3	4	5
So underwriters can make flipping* possible	1	2	3	4	5

7. What *type of signal* do the following actions convey to investors regarding the value of a firm going public?

	Negative Signal				Positive Signal
Selling insider shares in the IPO	1	2	3	4	5
Selling a large portion of the firm in the IPO	1	2	3	4	5
A large first-day stock price jump	1	2	3	4	5
Using a top investment banker	1	2	3	4	5
Using a big-four accounting firm	1	2	3	4	5
Having venture capital (VC) backing	1	2	3	4	5
Having strong historical earnings	1	2	3	4	5
Insiders commit to a long lockup*	1	2	3	4	5
Issuing units*	1	2	3	4	5

8. From your perspective, how important were the following IPO *process issues*?

	Not Important				Very Important
The lockup period to align management with future stockholders	1	2	3	4	5
The overallotment* (Green Shoe) option	1	2	3	4	5
A firm-commitment* underwriting as opposed to a best-efforts* underwriting	1	2	3	4	5
A unit offering*	1	2	3	4	5
The threat of accusations pertaining to window-dressing* in the prospectus	1	2	3	4	5

(*continued*)

Appendix A.—*Continued*

9. To what extent did each of the following *create concern* in the decision to conduct the IPO?

	No Concern				**Great Concern**
SEC reporting requirements	1	2	3	4	5
Costs/fees of an IPO	1	2	3	4	5
Desire to maintain decision-making control	1	2	3	4	5
Already have enough capital	1	2	3	4	5
Low price of our stock	1	2	3	4	5
To avoid EPS dilution	1	2	3	4	5
To avoid ownership dilution	1	2	3	4	5
We would prefer to be acquired by another firm	1	2	3	4	5
Bad market/industry conditions	1	2	3	4	5
Officer liability (The Sarbanes–Oxley Act*)	1	2	3	4	5
Disclosing information to competitors	1	2	3	4	5

THANK YOU!

If you would like an advance copy of the results or if you would like to discuss the survey, please email or call Dr. Jim Brau (jbrau@byu.edu or 801-318-7919).

Appendix B: Sample Representativeness

Wallace and Mellor (1988) advocate testing early versus late respondents to verify whether significant differences in survey responses exist. The late respondents serve as proxies for nonrespondents. We test for significant differences between the CFOs who responded to our first mailing versus those who responded to our last mailing. Using *t*-tests adjusted for equality or inequality of variances, only 6 of the 66 survey questions have significant differences between sample means at the 10% level (3 are at the 5% level). Random variation would predict a similar number of significant differences, suggesting no substantive difference between early and late respondents.

Moore and Reichert (1983) suggest comparing the characteristics of responding firms to the entire population of firms. We test each of our three subsamples separately. The withdrawn IPO sample has five conditioning variables (revenues, employees, firm age, underwriter reputation, and VC backing). Parametric *t*-tests and Wilcoxon nonparametric tests indicate that our sample is generally representative of the overall population of withdrawn firms. The only variable that displays a significantly different *t*-test is number of employees, which is not different using the nonparametric approach and which vanishes when three extreme nonresponding outliers are excluded.

For the successful IPO sample, we test for differences for the 12 conditioning variables (revenues, employees, firm age, underwriter reputation, VC backing, change in insider ownership, percentage of secondary shares offered, overhang, integer offer price, pre-offer price adjustments, initial returns, and 1-year returns). Difference tests reveal slight differences across 4 of the 12 variables. Specifically, the responding firms have lower overhang than the population, but with the elimination of two extreme outliers, our sample becomes

representative. Additionally, when compared to the overall population, our sample has relatively fewer IPOs that issued in the first quarter of 2000. The technology bubble burst at the end of this quarter and the market for IPOs became much cooler. If we include the first quarter (eight of our responding sample) firms in our difference tests, our responders experienced lower pre-issue price increases and lower initial returns. If we exclude the first quarter, our sample is representative of the remaining 11 quarters in our test period. Finally, our responding firms tended to have a lower VC presence (47% vs. 63%) and tended to perform better over 1 year following the issue (−13% vs. −38%). This difference in long-run returns is partially attributable to the first-quarter effect mentioned above. However, this statistical difference may also indicate that CFOs of firms that have performed relatively better were more willing to respond to our survey.

Finally, for the not-tried sample, we test the three conditioning variables available for these privately held firms (revenues, employees, and firm age). After excluding 2 nonresponding firms with extreme sales figures and 12 nonresponding firms with extreme employee figures (out of over 1,200 firms with data), our sample is representative along all three dimensions.

Appendix C: Summary Table of Theories and Survey Conclusions

Theory or Concept	Survey Evidence (Strong Support, Moderate Support, Low Support)
Why go public?	
Minimize cost of capital/Optimal capital structure (Scott (1976), M&M (1963))	*Low Support*—Fewer than half of the CFOs agreed that this is an important reason to go public; it is ranked fourth on our list of rationale
Pecking order of financing (Myers and Majluf (1984), Myers (1984))	*Low Support*—CFOs provided minimal support for this theory. The low cost of debt at the time of the survey may have influenced this finding
To create public market so firm has the currency of shares for acquisitions (Brau et al. (2003))	*Strong Support*—Single most important reason for going public
As a tool to cash-out (Black and Gilson (1998))	*Moderate Support*—More CFOs felt the IPO allowed principals to cash out (44%) than VCs to cash out (32%)
To increase the publicity/reputation of the company (Maksimovic and Pichler (2001))	*Moderate Support*—CFOs agreed that going public does enhance a company's reputation
To establish a market price/value for firm (Zingales (1995), Mello and Parsons (2000))	*Strong Support*--Second-most important reason for going public
To allow more dispersion of ownership (Chemmanur and Fulghieri (1999))	*Moderate Support*—Nearly half of the CFOs identified this as an important reason to go public
To create an analyst following (Bradley et al. (2003))	*Low Support*—Few CFOs rated this as an important reason for going public

(*continued*)

Appendix C.—*Continued*

Theory or Concept	Survey Evidence (Strong Support, Moderate Support, Low Support)
Timing of IPO	
Overall stock market conditions (Lucas and McDonald (1990), Ritter and Welch (2002))	*Strong Support*—CFOs indicate that their companies opportunistically time their IPOs to take advantage of strong overall markets
Industry conditions of IPO firm (Pagano et al. (1998), Lowery (2002))	*Strong Support*—CFOs indicate that their companies opportunistically time their IPOs to take advantage of strong industry conditions
Recent first-day stock performance of firms going public (Lowery and Schwert (2002))	*Low Support*—CFOs do not use recent first-day stock performance as a strong indicator of appropriate timing
Other good firms are currently issuing equity (Choe, Masulis, and Nanda (1993))	*Low Support*—CFOs do not focus on other companies' decisions to go public nearly as much as they look to broader market/industry issues
Our company is to that point of the growth cycle, we need the capital to continue to grow (Choe et al. (1993))	*Strong Support*—The need for cash to support growth is a strong driver of timing
Underwriter selection (Krigman et al. (2001))	
Underwriter's overall reputation and status	*Strong Support*—CFOs view overall reputation of the underwriter as the most important selection criteria
Quality and reputation of the research department/analyst	*Strong Support*—CFOs view research as a critical underwriter skill
Underwriter's industry expertise and connections	*Strong Support*—CFOs view industry expertise as a critical underwriter skill
Market making, trading desk, and liquidity provision services	*Moderate Support*—CFOs do consider ancillary services but do not choose an underwriter based on such services
Institutional investor client base of the underwriter	*Moderate Support*—CFOs do consider the underwriter's institutional client base in the selection process
Pricing and valuation promises	*Moderate Support*—CFOs pay attention to valuation promises but do not choose underwriters based on such promises
Fee structure	*Low Support*—CFOs are not concerned about underwriters' fee structures
Retail client base of the underwriter	*Low Support*—CFOs do not select an underwriter because of its retail client base
Nonequity-related services (e.g., advice on M&A, debt)	*Low Support*—CFOs do not select an underwriter because of its nonequity-related services
Underwriter has a reputation for spinning	*Low Support*—CFOs are not worried about spinning
IPO underpricing	
To protect against possible future litigation by investors (Tinic (1988), Hughes and Thakor (1992), Drake and Vetsuypens (1993))	*Low Support*—CFOs do not attribute underpricing to the desire to avoid litigation

(*continued*)

Appendix C.—*Continued*

Theory or Concept	Survey Evidence (Strong Support, Moderate Support, Low Support)
To compensate investors for taking the risk of the IPO (Beatty and Ritter (1986), Rock (1986))	*Strong Support*—CFOs viewed risk as the most important source of underpricing
To ensure a wide base of owners (Booth and Chua (1996), Brennan and Franks (1997))	*Moderate Support*—CFOs associate underpricing with an increase in the breadth of ownership
To allow for the creation of a blockholder for increased monitoring (Stoughton and Zechner (1998))	*Low Support*—CFOs do not associate underpricing with the creation of a watchdog group
To reward investors for divulging accurate valuation information (Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Spatt and Srivastava (1991))	*Low Support*—CFOs do not think that underpricing exists as a means to reward investors for divulging accurate valuation information
Issuers are pleasantly surprised with the amount they can raise in the IPO (Loughran and Ritter (2002))	*Low Support*—CFOs do not see a strong connection between underpricing and the creation of personal wealth
To start a domino or cascade effect among investors (Welch (1992))	*Low Support*—CFOs only marginally link the cascade effect with underpricing
To allow for cost savings in other areas of marketing the issue (Habib and Ljungqvist (2001))	*Low Support*—CFOs do not associate underpricing with the desire to minimize marketing costs
To increase the post-issue trading volume of the stock (Boehmer and Fishe (2001))	*Moderate Support*—CFOs believe that underpricing does exist to increase trading volume
To bring attention to the stock on the opening day (Demers and Lewellen (2003))	*Low Support*—CFOs do not see a strong link between underpricing and the desire to bring attention to the stock on the opening day
To allow for spinning (Maynard (2002), Griffith (2004))	*Low Support*—CFOs are not concerned that underpricing is used as a tool to make spinning possible
To allow for flipping by favored investors (Aggarwal (2003), Fishe (2002), Krigman et al. (1999))	*Low Support*—CFOs are not concerned that underpricing is used as a tool to make flipping possible
Signaling in IPOs	
Selling insider shares in the IPO (Leland and Pyle (1977))	*Strong Negative Signal*—CFOs view the selling of shares by insiders as the strongest negative signal
Selling a large portion of the firm in the IPO (Leland and Pyle (1977))	*Moderate Negative Signal*—CFOs perceive the selling of a large portion of the firm via an IPO as a lack of insider confidence and as a negative signal
Leaving a large amount of money on the table (Welch (1989), Allen and Faulhaber (1989), and Chemmanur (1993))	*Moderate Positive Signal*—CFOs view a large first-day stock price jump as an external show of confidence and thus as a positive signal
Using a top investment banker (Booth and Smith (1986), Carter and Manaster (1990))	*Strong Positive Signal*—CFOs view the use of a top investment banker as one of the strongest positive signals
Using a big-four accounting firm (Titman and Trueman (1986), Beatty (1989))	*Strong Positive Signal*—CFOs perceive the use of a big-four accounting firm as a show of confidence and thus as a positive signal

(*continued*)

Appendix C.—*Continued*

Theory or Concept	Survey Evidence (Strong Support, Moderate Support, Low Support)
Having venture capital (VC) backing (Megginson and Weiss (1991))	*Weak Positive Signal*—CFOs view the backing of a venture capitalist as a weak, positive signal
Having strong historical earnings (Teoh et al. (1998))	*Strong Positive Signal*—CFOs see past results as the best signal of future expectations
Committing to a long lockup (Courteau (1995), Brau et al. (2004))	*Strong Positive Signal*—CFOs view a long lockup as a sign of insider confidence and thus as a positive signal
Issuing units (Chemmanur and Fulghieri (1997))	*Strong Negative Signal*—CFOs view the issuing of units as an indication that insiders lack confidence and thus as a negative signal
IPO process issues	
The lockup period to align management with future stockholders (Brav and Gompers (2003))	*Moderate Support*—CFOs view the use of a lockup as an alignment device, but to a lesser degree than the lockup as a signal
The overallotment (Green Shoe) option (Aggarwal (2000), Zhang (2004))	*Moderate Support*—CFOs view the overallotment option as an issue that merits attention in managing the IPO process
A firm-commitment underwriting as opposed to a best-efforts underwriting (Mandelker and Raviv (1977), Ritter (1987), Sherman (1992), Cho (1992), Welch (1991))	*Strong Support*—CFOs view the use of a firm-commitment underwriting as the most important issue in managing the IPO process
A unit offering (Barry et al. (1991), Chemmanur and Fulghieri (1997), Schultz (1993))	*Low Support*—CFOs do not view a unit offering as an important IPO process issue
The threat of accusations pertaining to window-dressing in the prospectus (Teoh et al. (1998))	*Low Support*—CFOs do not view potential negative backlash associated with window dressing as an important issue
IPO concerns	
SEC reporting requirements	*Low Support*—CFOs do not view SEC reporting requirements as an impediment to going public
Costs/fees of an IPO	*Low Support*—CFOs do not view costs/fees as an impediment to going public
Desire to maintain decision-making control	*Strong Support*—CFOs' most important concern is to maintain decision-making control
Already have enough capital	*Low Support*—When deciding to go public or not, CFOs are not concerned with having too much capital
Low price of our stock	*Low Support*—Except for CFOs at withdrawn companies, the low price of a stock was not viewed as a serious concern
To avoid EPS dilution	*Low Support*—CFOs do not view EPS dilution as an impediment to going public
To avoid ownership dilution	*Moderate Support*—CFOs are concerned about the effect going public will have on ownership dilution
Bad market/industry conditions	*Moderate Support*—CFOs view bad market/industry conditions as a reason not to go public. This is particularly true for CFOs at withdrawn companies

(*continued*)

Appendix C.—*Continued*

Theory or Concept	Survey Evidence (Strong Support, Moderate Support, Low Support)
Officer liability (The Sarbanes–Oxley Act)	*Low Support*—CFOs do not view the Sarbanes–Oxley Act as an impediment to going public
Disclosing information to competitors	*Low Support*—CFOs do not view disclosing information to competitors as a significant impediment to going public

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